LOCUS YSCCUP1 2010 bp DNA PLN 19-APR-1991
DEFINITION Yeast (S.cerevisiae) CUP1 locus encoding copper chelatin and an URF.
ACCESSION K02204 M64045
NID g171337
KEYWORDS chelatin; copper chelatin; copper metallothionein; metallothionein; unidentified reading frame.
SOURCE Yeast (S.cerevisiae: X2180 [1]) DNA, clones YRp7 [1] and YEp13 [2].
ORGANISM Saccharomyces cerevisiae
Eukaryotae; mitochondrial eukaryotes; Fungi; Ascomycota; Hemiascomycetes; Saccharomycetales; Saccharomycetaceae; Saccharomyces.
REFERENCE 1 (bases 1 to 1998)
AUTHORS Karin,M., Najarian,R., Haslinger,A., Valenzuela,P., Welch,J. and Fogel,S.
TITLE Primary structure and transcription of an amplified genetic locus: The CUP1 locus of yeast
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 81, 337-341 (1984)
MEDLINE 84119482
REFERENCE 2 (bases 1075 to 2010)
AUTHORS Butt,T.R., Sternberg,E.J., Gorman,J.A., Clark,P., Hamer,D., Rosenberg,M. and Crooke,S.T.
TITLE Copper metallothionein of yeast, structure of the gene, and regulation of expression
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 81, 3332-3336 (1984)
MEDLINE 84221953
REFERENCE 3 (bases 1075 to 2010)
AUTHORS Butt,T.R.
JOURNAL Unpublished (1985)
REFERENCE 4 (sites)
AUTHORS Silar,P., Butler,G. and Thiele,D.J.
TITLE Heat shock transcription factor activates transcription of the yeast metallothionein gene
JOURNAL Mol. Cell. Biol. 11, 1232-1238 (1991)
MEDLINE 91141471
COMMENT Copper resistance in yeast is controlled by the CUP1 locus, which can be found in up to 15 tandemly iterated copies on chromosome VIII. The basic amplified CUP1 unit contains two distinct transcription units coding for the inducible copper binding protein, chelatin (61 aa), and an undetermined protein found at bases 329-1069 designated protein X (246 aa) in [1]. Possible TATA boxes were found at bases 202 and 216 for URF-X, and bases 1392 and 1436 for the chelatin gene. Termination sequences were found at bases 1244 and 1260 for URF-X, and bases 1820 and 1837 for the chelatin gene [1]. [2] identifies a potential poly-adenylation signal starting at base 1981.
Although the yeast copper binding protein and the metallothionein proteins both provide heavy metal binding, there are major differences between the proteins; [1] suggests that the proteins are convergently related, and refers to the protein as copper chelatin; [2] refers to it as copper metallothionein (Cu-MT).
FEATURES Location/Qualifiers

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                     /citation=[4]
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                     /note="chelatin mRNA (alt.)"
     mRNA            1478..>1719
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BASE COUNT      713 a    327 c    313 g    657 t
ORIGIN
          15 bp upstream of Fnu4HI site, chromosome VIII.
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       61 cattccttta attgctaacg atttaaaatt actggaaacg caagcaaaat tgataaatat
      121 tctgcaaggt gttcctttct acttgccagt aaatttaacc aaaattgaaa gtctgttaga
      181 aaccttgact atgggcgtga gtaatacagt agacttatat tttcatgaca acgaagtcag
      241 aaaagaatgg aaagacactt taaattttat caataccatt gtttatacaa atttttcct
      301 ttttgttcaa aacgaatcct ctttgtccat ggcagttcaa cattcttcta acaacaataa
      361 gacctcgaac tctgaaagat gtgcaaagga tctgatgaaa attatttcta atatgcacat
      421 tttttactca ataacattta attttatctt ccccataaag tcgataaagt cattttcaag
      481 cggcaataat cgctttcatt ctaatggtaa agaattttta ttcgcaaatc attttattga
      541 aatcttacag aattttatag caatcacatt tgctattttc caacgttgtg aagtaatatt
      601 atatgacgaa ttttacaaaa atctttcaaa tgaggagatt aatgttcaat tgctattgat
      661 tcatgacaag attttggaaa ttttaaaaaa aatagaaatt atcgtatcct ttttacgaga
      721 tgaaatgaat agcaacggaa gtttcaaatc tattaaaggt ttcaacaagg ttttgaatct
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     1621 aaatcatgta gctgcccaac ggggtgtaac agcgacgaca aatgcccctg cggtaacaag
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     1981 aaaaaaaaaa aaaaagctat tcatggtacc
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